

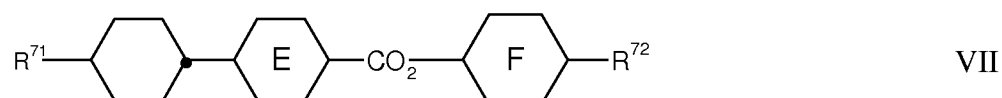
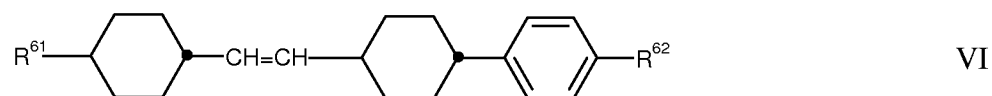
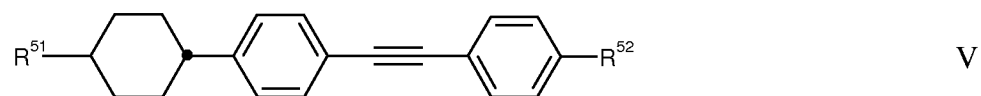
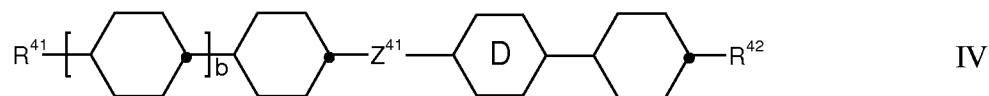
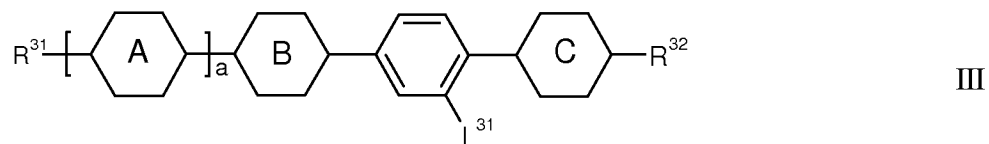
This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. – 16. (Canceled)

17. (Previously presented) Bistable liquid crystal device comprising

- two outer substrates which, together with a frame, form a cell;
- a liquid crystal composition present in said cell;
- electrode structures with alignment layers on the inside of said outer substrates whereby at least one alignment layer comprises an alignment grating that permits the compounds of said liquid crystal composition to adopt at least two different stable states whereby the assembly of said electrode structures with said alignment layers being such that a switching between the said at least two different stable states is achieved by applying suitable electric signals to said electrode structures;
- whereby said liquid crystal composition comprises
 - at least 30 weight% (based on the total weight of the composition) of a component (α) containing one or more compounds having a dielectric anisotropy $\Delta\epsilon$ of at least 25, whereby at least 25 weight% (based on the total weight of the composition) of said compounds have a dielectric anisotropy $\Delta\epsilon$ of at least 40; and
 - at least 5 weight% (based on the total weight of the composition) of a component (β); whereby said component (β) comprises at least one compound of formula III and/or at least one compound of formula IV and/or at least one compound of formula V and/or at least one compound of formula VI and/or at least one compound of formula VII



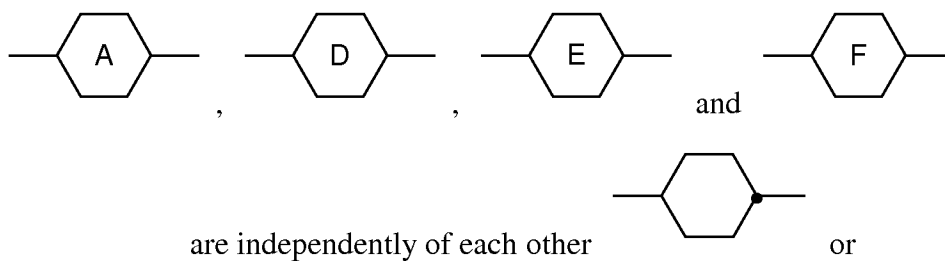
in which

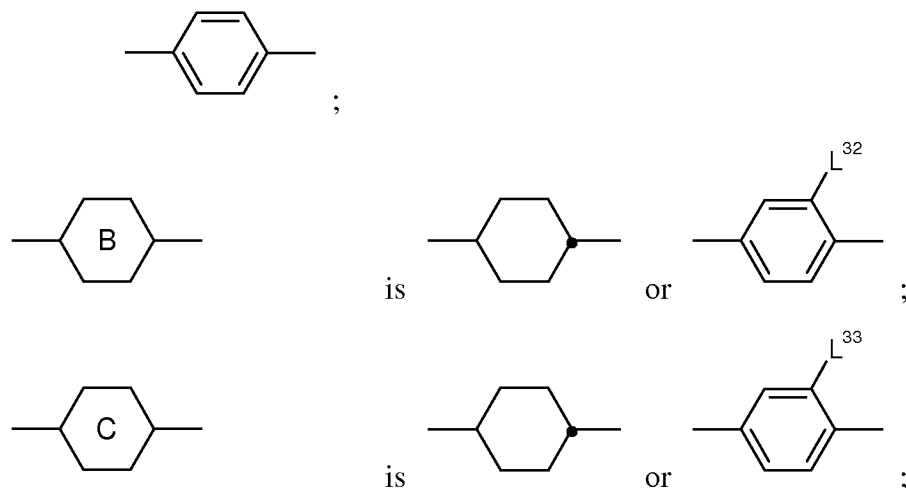
a and b are independently of each other 0 or 1;

R^{31} , R^{32} , R^{41} , R^{42} , R^{51} , R^{52} , R^{61} , R^{62} , R^{71} and R^{72} are independently of each other C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C \equiv C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other; and

$$L^{31} \quad \text{is H or F;}$$

Z⁴¹ is -CO-O-, -CH₂O-, -OCH₂-, -CF₂O-, -OCF₂-, -CH₂CH₂-, -CF₂CF₂-,
-CH₂CF₂-, -CF₂CH₂-, -CH=CH- or -C≡C-;





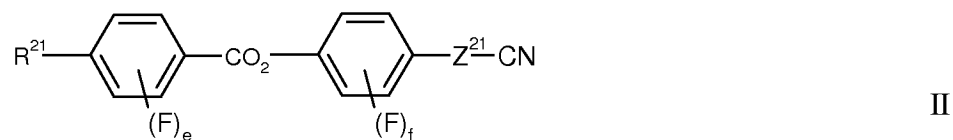
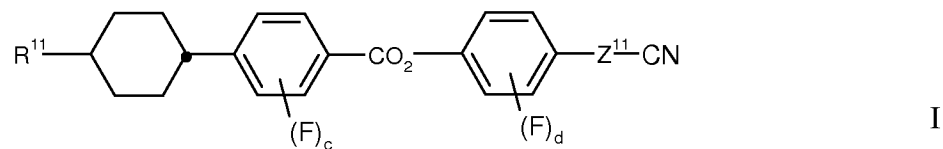
in which

L^{32} and L^{33} are independently of each other H or F.

18. (Original) Bistable liquid crystal device according to claim 17 whereby

- said device is a zenithal bistable nematic liquid crystal device;
- and
- said electrode structures with alignment layers on the inside of said outer substrates have at least one alignment layer that comprises an alignment grating that permits the compounds of said liquid crystal composition to adopt at least two different stable states with different pretilt angles in the same azimuthal plane.

19. (Previously presented) Bistable liquid crystal device according to claim 17 whereby said component (α) comprises at least one compound of formula I and/or at least one compound of formula II



in which

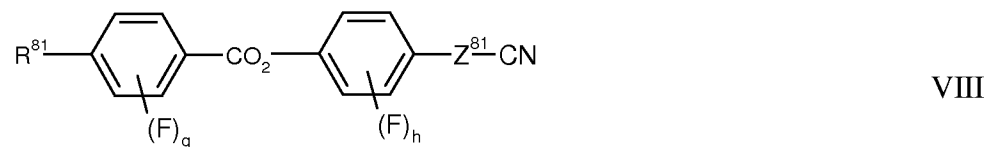
c, d, e and f are independently of each other 0, 1, 2, 3 or 4;

R^{11} is C_1-C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

R^{21} is C_2-C_{15} alkenyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Z^{11} and Z^{21} are independently of each other a single bond or -C≡C-.

- 20. (Previously presented)** Bistable liquid crystal device according to claim 18 whereby said component (α) comprises at least one compound of formula VIII



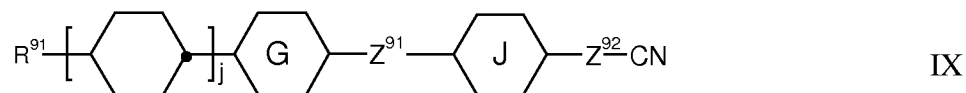
in which

g and h are independently of each other 0, 1, 2, 3 or 4;

R^{81} is C_1-C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Z^{81} a single bond or -C≡C-.

- 21. (Previously presented)** Bistable liquid crystal device according to claim 17 whereby said component (α) comprises at least one compound of formula IX

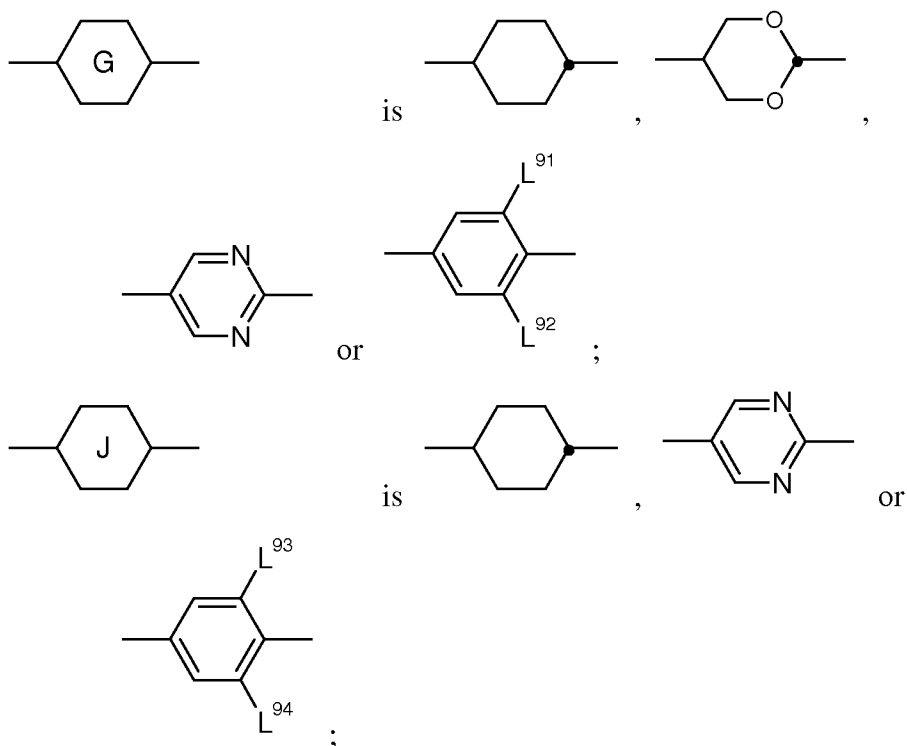


in which

j is 0 or 1;

R^{91} is C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Z^{91} and Z^{92} are independently of each other a single bond or -C≡C-;

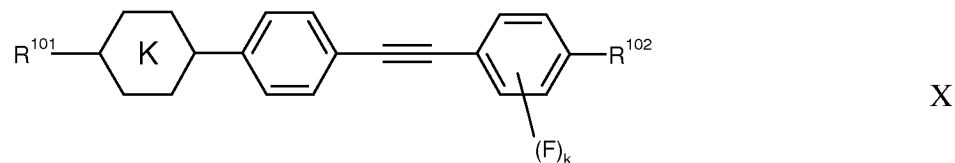


in which

L^{91} , L^{92} , L^{93} and L^{94} are independently of each other H or F.

- 22. (Previously presented)** Bistable liquid crystal device according to claim 17 whereby said liquid crystal composition further comprises
- at least 3 weight% (based on the total weight of the composition) of a component (γ) containing one or more compounds having an optical anisotropy Δn of at least 0.20.

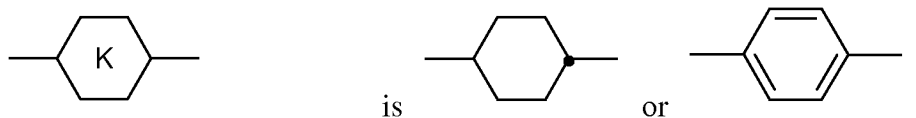
- 23. (Previously presented)** Bistable liquid crystal device according to claim 22 whereby said component (γ) comprises at least one compound of formula X



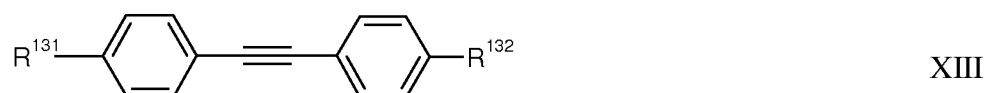
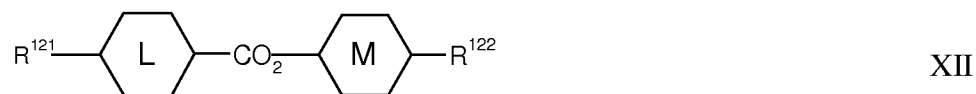
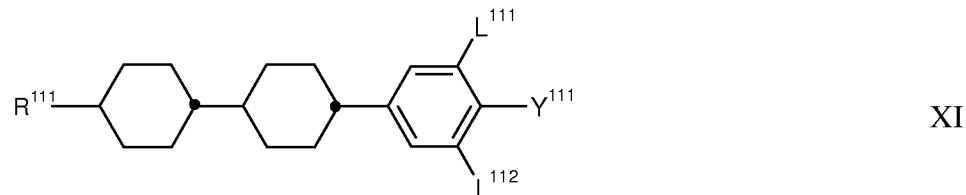
in which

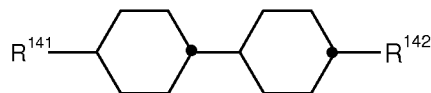
k is 0, 1, 2, 3 or 4;

R^{101} and R^{102} are independently of each other C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other; and



- 24. (Previously presented)** Bistable liquid crystal device according to claim 17 whereby said liquid crystal composition further comprises at least one compound of formula XI and/or at least one compound of formula XII and/or at least one compound of formula XIII and/or at least one compound of formula XIV





XIV

in which

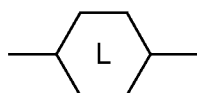
R^{111} and R^{142} are independently of each other C_2 - C_{15} alkenyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

R^{121} , R^{131} , R^{132} and R^{141} are independently of each other C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

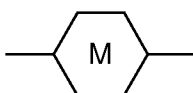
R^{122} is C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Y^{111} is F, Cl, C_1 - C_{15} alkanyl or C_2 - C_{15} alkenyl that are independently of each other mono- or poly-substituted with halogen, or C_1 - C_{15} alkoxy, which is mono- or poly-substituted with halogen;

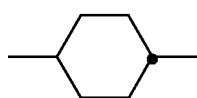
L^{111} and L^{112} are independently of each other H or F; and



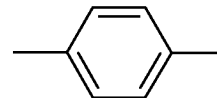
and



are independently of each other



or



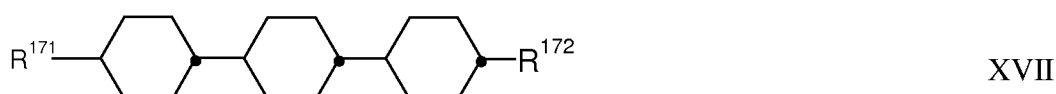
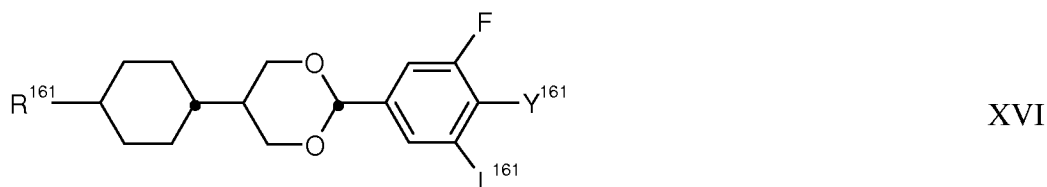
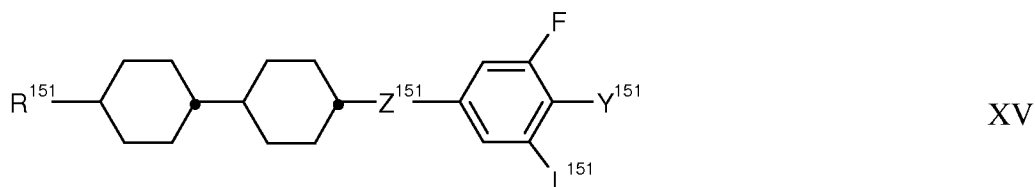
- 25. (Previously presented)** Bistable liquid crystal device according to claim 17 whereby said liquid crystal composition comprises at least 50 weight% (based on the total weight of the composition) of said component (α).

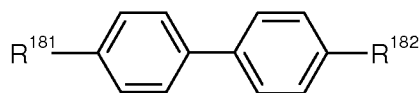
26. (Previously presented) Bistable liquid crystal device according to claim 17 whereby said liquid crystal composition comprises at least 50 weight% (based on the total weight of the composition) of said component (α) whereby at least 30 weight% (based on the total weight of the composition) of said compounds have a dielectric anisotropy $\Delta\epsilon$ of at least 40.

27. (Currently Amended) Bistable liquid crystal device according to ~~claim 17~~ claim 19 whereby said liquid crystal composition comprises at least one compound of formula II of said component (α) and at least 8 weight% (based on the total weight of the composition) of said component (β).

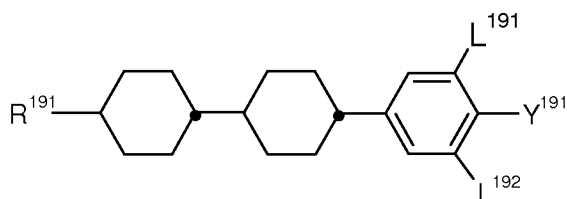
28. (Previously presented) Bistable liquid crystal device according to claim 22 whereby said liquid crystal composition comprises at least 5 weight% (based on the total weight of the composition) of said component (γ).

29. (Previously presented) Bistable liquid crystal device according to claim 17 whereby said liquid crystal composition comprises at least one compound of formula XV and/or of formula XVI and/or XVII and/or of formula XVIII and/or of formula XIX and/or of formula XX and/or of formula XXI and/or of formula XXII:

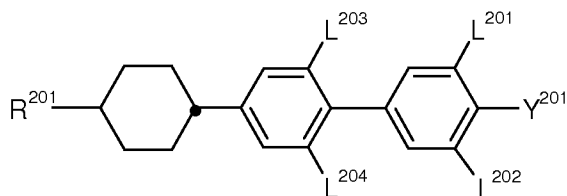




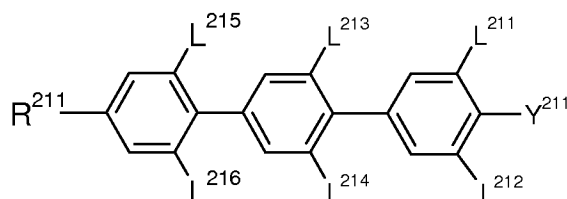
XVIII



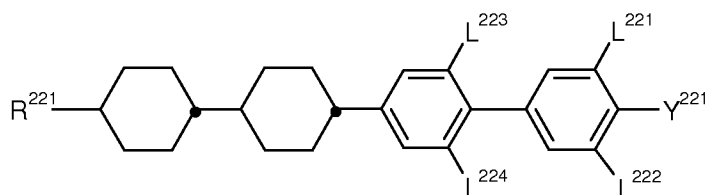
XIX



XX



XXI



XXII

in which

R^{151} , R^{161} , R^{171} , R^{172} , R^{181} , R^{182} , R^{201} , R^{211} and R^{221}

are independently of each other C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

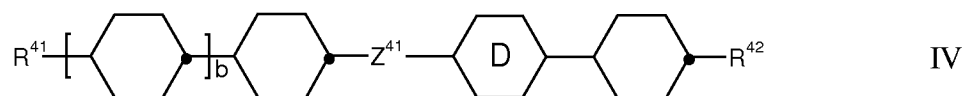
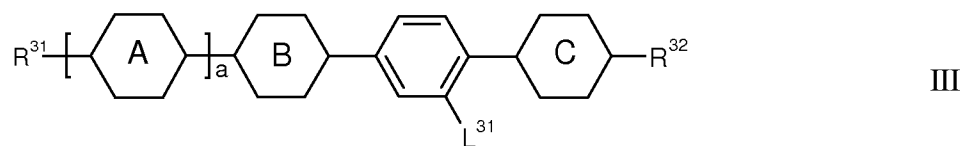
R^{191} is C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other (i.e. R^{191} does not represent an alkenyl

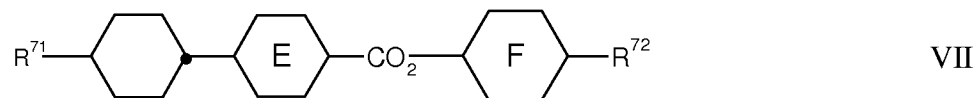
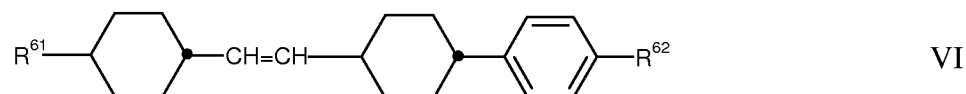
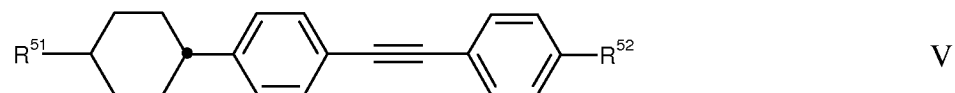
radical);
 Y^{151} , Y^{161} , Y^{191} , Y^{201} , Y^{211} and Y^{221} are independently of each other F, Cl, C_1 - C_{15} alkanyl or C_2 - C_{15} alkenyl that are independently of each other mono- or poly-substituted with halogen, or C_1 - C_{15} alkoxy which is mono- or poly-substituted with halogen;
 L^{151} , L^{161} , L^{191} , L^{192} , L^{201} , L^{202} , L^{203} , L^{204} , L^{211} , L^{212} , L^{213} , L^{214} , L^{215} , L^{216} , L^{221} , L^{222} , L^{223} and L^{224} are independently of each other H or F; and
 Z^{151} is -CO-O-, CH_2O or CF_2O .

30. (Previously presented) A method comprising displaying information and/or images on a bistable liquid crystal display device, wherein the device comprises a cell containing a liquid crystal composition which comprises:

- at least 30 weight% (based on the total weight of the composition) of a component (α) containing one or more compounds having a dielectric anisotropy $\Delta\epsilon$ of at least 25, whereby at least 25 weight% (based on the total weight of the composition) of said compounds have a dielectric anisotropy $\Delta\epsilon$ of at least 40; and
- at least 5 weight% (based on the total weight of the composition) of a component (β);

whereby said component (β) comprises at least one compound of formula III and/or at least one compound of formula IV and/or at least one compound of formula V and/or at least one compound of formula VI and/or at least one compound of formula VII:





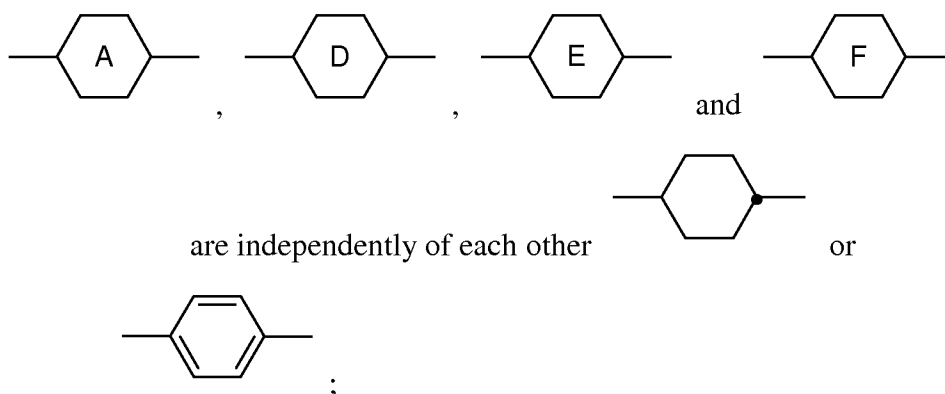
in which

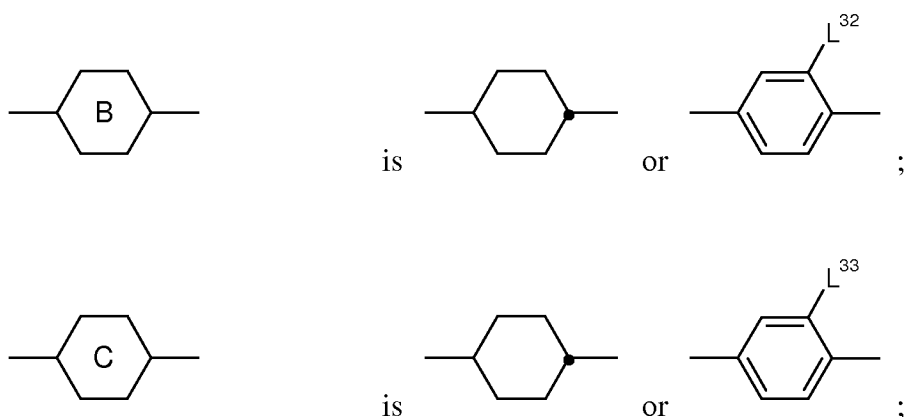
a and b are independently of each other 0 or 1;

R^{31} , R^{32} , R^{41} , R^{42} , R^{51} , R^{52} , R^{61} , R^{62} , R^{71} and R^{72} are independently of each other C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

L^{31} is H or F;

Z^{41} is -CO-O-, -CH₂O-, -OCH₂-, -CF₂O-, -OCF₂-, -CH₂CH₂-, -CF₂CF₂-, -CH₂CF₂-, -CF₂CH₂-, -CH=CH- or -C≡C-;



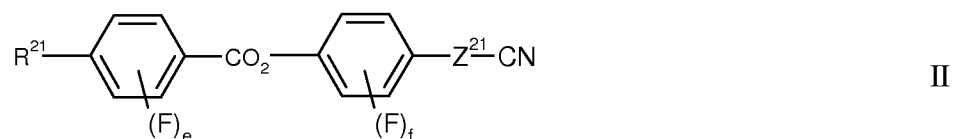
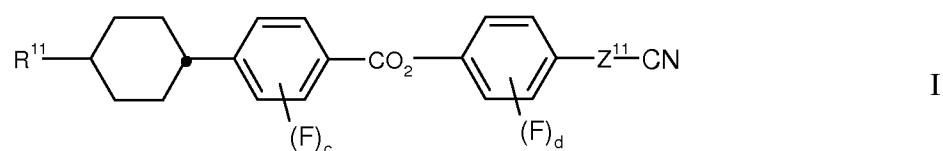


in which

L^{32} and L^{33} are independently of each other H or F.

31. (Previously presented) The method of claim 30 wherein said bistable liquid crystal display device is a zenithal bistable nematic liquid crystal display device.

32. (Previously presented) The method of claim 30, wherein said component (α) comprises at least one compound of formula I and/or at least one compound of formula II



in which

c, d, e and f are independently of each other 0, 1, 2, 3 or 4;

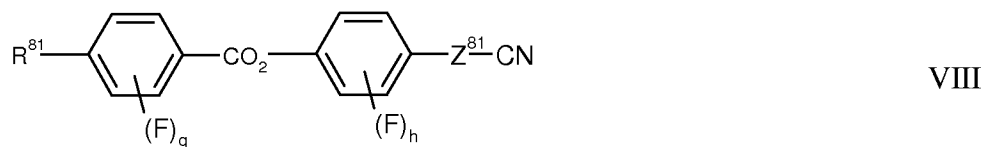
R^{11} is C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each

other;

R^{21} is C_2 - C_{15} alkenyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Z^{11} and Z^{21} are independently of each other a single bond or -C≡C-.

- 33. (Previously presented)** The method of claim 30, wherein said component (α) comprises at least one compound of formula VIII



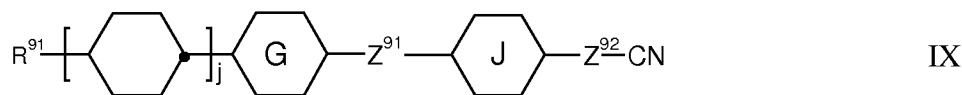
in which

g and h are independently of each other 0, 1, 2, 3 or 4;

R^{81} is C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Z^{81} is a single bond or -C≡C-.

- 34. (Previously presented)** The method of claim 30, wherein said component (α) comprises at least one compound of formula IX

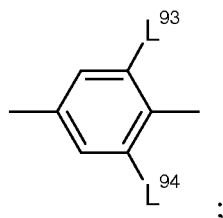
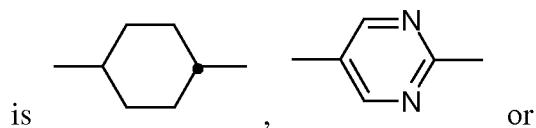
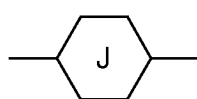
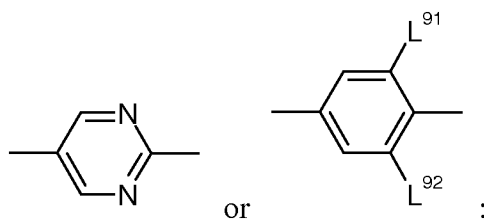
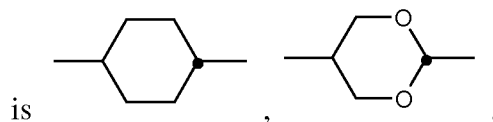
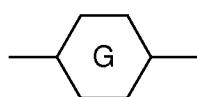
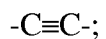


in which

j is 0 or 1;

R^{91} is C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Z^{91} and Z^{92} are independently of each other a single bond or

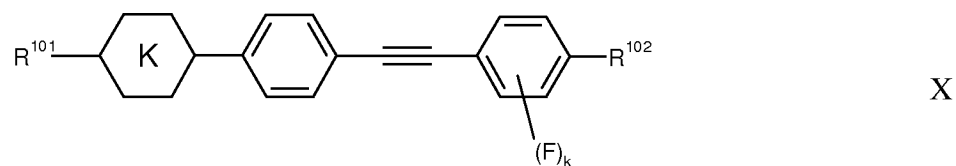


in which

L^{91} , L^{92} , L^{93} and L^{94} are independently of each other H or F.

- 35. (Previously presented)** The method of claim 30, wherein said liquid crystal composition further comprises at least 3 weight% (based on the total weight of the composition) of a component (γ) containing one or more compounds having an optical anisotropy Δn of at least 0.20.

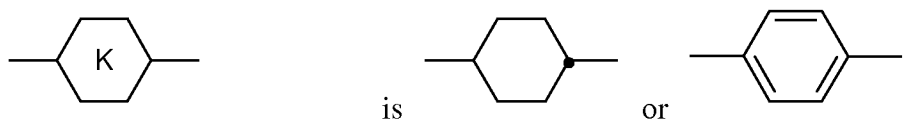
- 36. (Previously presented)** The method of claim 35, wherein said component (γ) comprises at least one compound of formula X:



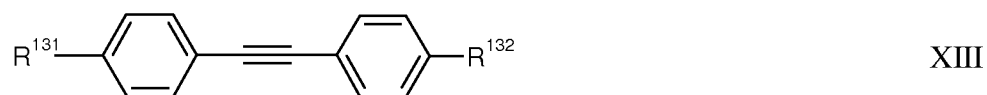
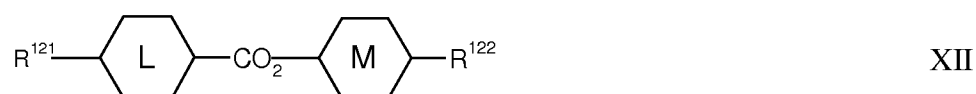
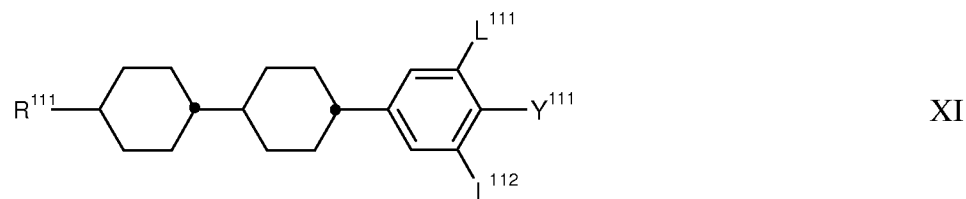
in which

k is 0, 1, 2, 3 or 4;

R^{101} and R^{102} are independently of each other C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other; and



- 37. (Previously presented)** The method of claim 30, wherein said liquid crystal composition further comprises at least one compound of formula XI and/or at least one compound of formula XII and/or at least one compound of formula XIII at least one compound of formula XIV:



in which

R^{111} and R^{142} are independently of each other C_2 - C_{15} alkenyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

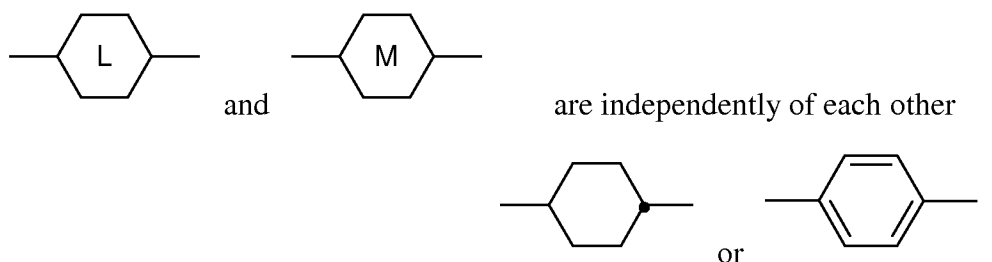
R^{121} , R^{131} , R^{132} and R^{141} are independently of each other C_1 - C_{15} alkyl which is

unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH₂ groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

R¹²² is C₁-C₁₅ alkyl which is unsubstituted or mono- or poly-substituted with halogen and in which one or more of the CH₂ groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Y¹¹¹ is F, Cl, C₁-C₁₅ alkanyl or C₂-C₁₅ alkenyl that are independently of each other mono- or poly-substituted with halogen, or C₁-C₁₅ alkoxy, which is mono- or poly-substituted with halogen;

L¹¹¹ and L¹¹² are independently of each other H or F; and

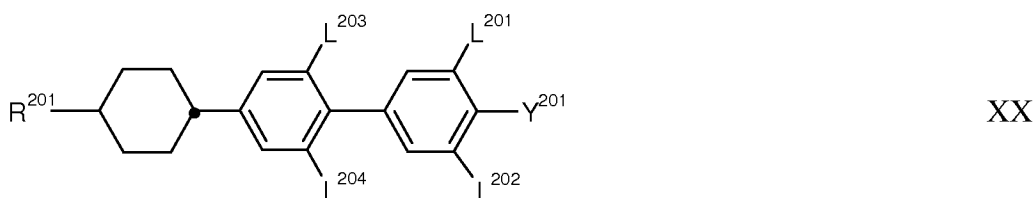
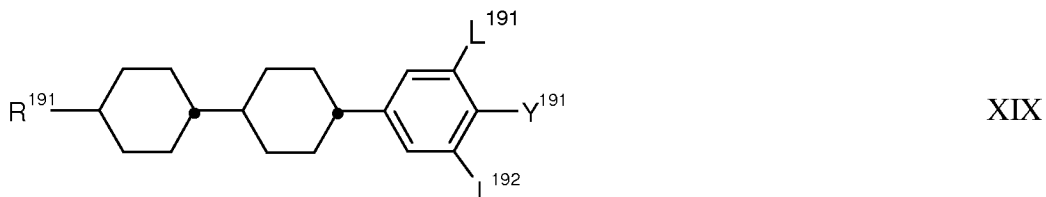
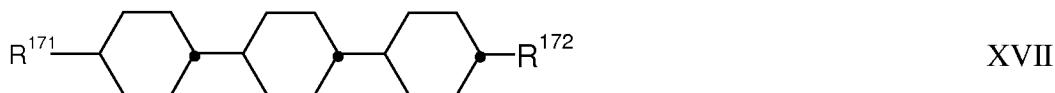
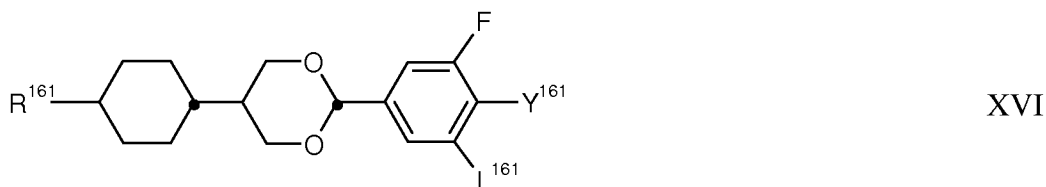
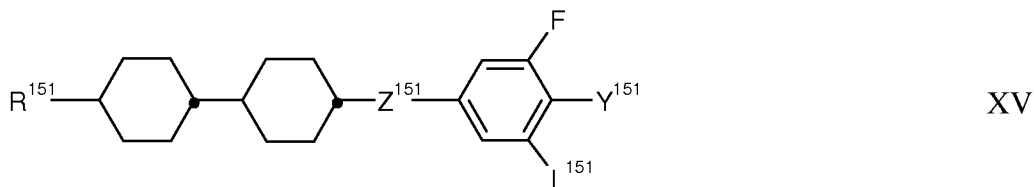


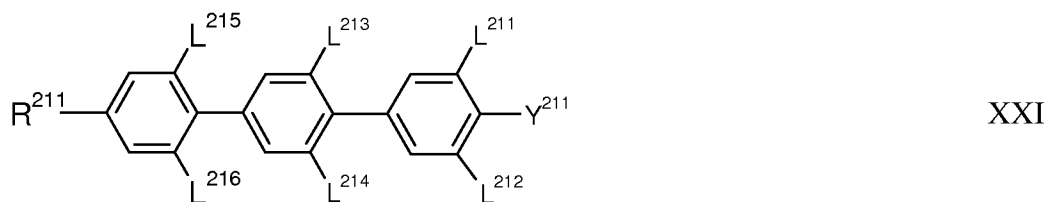
- 38. (Previously presented)** The method of claim 30, wherein said liquid crystal composition comprises at least 50 weight% (based on the total weight of the composition) of said component (α).
- 39. (Previously presented)** The method of claim 30, wherein said liquid crystal composition comprises at least 50 weight% (based on the total weight of the composition) of said component (α) whereby at least 30 weight% (based on the total weight of the composition) of said compounds have a dielectric anisotropy $\Delta\epsilon$ of at least 40.
- 40. (Previously presented)** The method of claim 32, wherein said liquid crystal composition comprises at least one compound of formula II of said

component (α) and at least 8 weight% (based on the total weight of the composition) of said component (β).

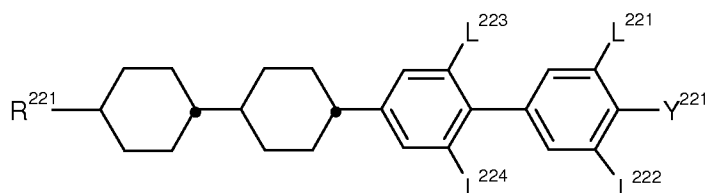
41. (Previously presented) The method of claim 35, wherein said liquid crystal composition comprises at least 5 weight% (based on the total weight of the composition) of said component (γ).

42. (Previously presented) The method of claim 30, wherein said liquid crystal composition further comprises at least one compound of formula XV and/or of formula XVI and/or XVII and/or of formula XVIII and/or of formula XIX and/or of formula XX and/or of formula XXI and/or of formula XXII:





XXI



XXII

in which

$R^{151}, R^{161}, R^{171}, R^{172}, R^{181}, R^{182}, R^{201}, R^{211}$ and R^{221}

are independently of each other C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

R^{191} is C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

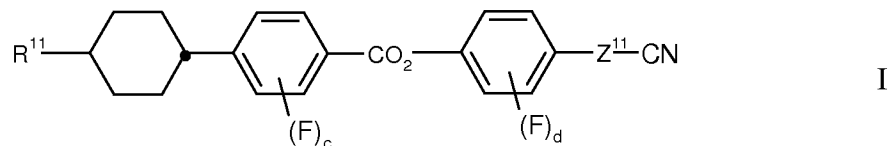
$Y^{151}, Y^{161}, Y^{191}, Y^{201}, Y^{211}$ and Y^{221} are independently of each other F, Cl, C_1 - C_{15} alkanyl or C_2 - C_{15} alkenyl that are independently of each other mono- or poly-substituted with halogen, or C_1 - C_{15} alkoxy, which is mono- or poly-substituted with halogen;

$L^{151}, L^{161}, L^{191}, L^{192}, L^{201}, L^{202}, L^{203}, L^{204}, L^{211}, L^{212}, L^{213}, L^{214}, L^{215}, L^{216}, L^{221}, L^{222}, L^{223}$ and L^{224} are independently of each other H or F; and

Z^{151} is -CO-O-, CH_2O or CF_2O .

43. (Previously presented) A liquid crystal medium comprising:

- at least 15%, by weight of the total medium, of at least one compound of formula I



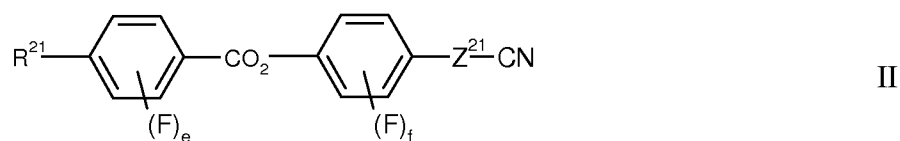
in which

c and d are independently of each other 0, 1, 2, 3 or 4;

R¹¹ is C₁-C₁₅ alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH₂ groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other; and

Z¹¹ is a single bond or -C≡C-, and

- at least one compound of formula II



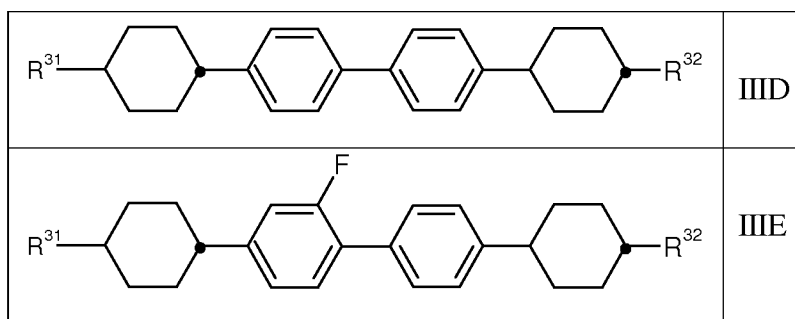
in which

e and f are independently of each other 0, 1, 2, 3 or 4;

R²¹ is C₂-C₁₅ alkenyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH₂ groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other;

Z²¹ is a single bond or -C≡C-; and

- at least 5%, by weight of the total medium, of one or more compounds of the formula IIID or IIIE:

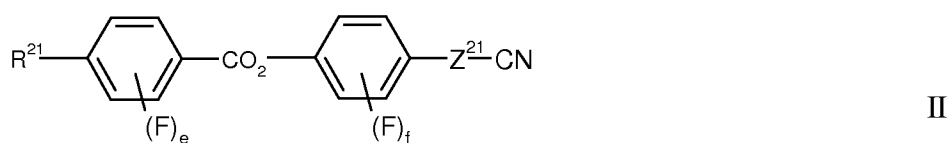


in which

R^{31} and R^{32} are independently of each other C_1 - C_{15} alkyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other.

44. (Canceled)

- 45. (Currently Amended)** Bistable liquid crystal device according to claim 17 whereby said component (α) comprises at least one compound of formula II:



in which

e and f are independently of each other 0, 1, 2, 3 or 4;

R^{21} is C_2 - C_{15} alkenyl which is unsubstituted or mono- or poly-substituted with CN or halogen and in which one or more of the CH_2 groups may be replaced independently of each other by -O-, -S-, -CH=CH-, -C≡C-, -CO-O-, -OC-O- such that there are no hetero atoms adjacent to each other; and

~~Z²¹~~ Z²¹ is a single bond or -C≡C-.